# ENVIRONMENTAL ASSESSMENT

## Nolichuckey Sand Company, Inc.

*Request for Tennessee Valley Authority Land Use and Section 26a Approval*

*and*

*Department of the Army Permit Approval under Section 10 of the Rivers and Harbors Act of 1899*

*for Lake Access and Sand Mining*

**TVA Tract Nos. NOR-14A, -14, -15, and -12B**
**Davy Crockett Reservoir**
**Nolichucky River Mile 49.0 to 50.1L at Bird Bridge**

**Greene County, Tennessee**

**TENNESSEE VALLEY AUTHORITY**
**U.S. ARMY CORPS OF ENGINEERS**

**August 1999**

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## NOLICHUCKEY SAND COMPANY

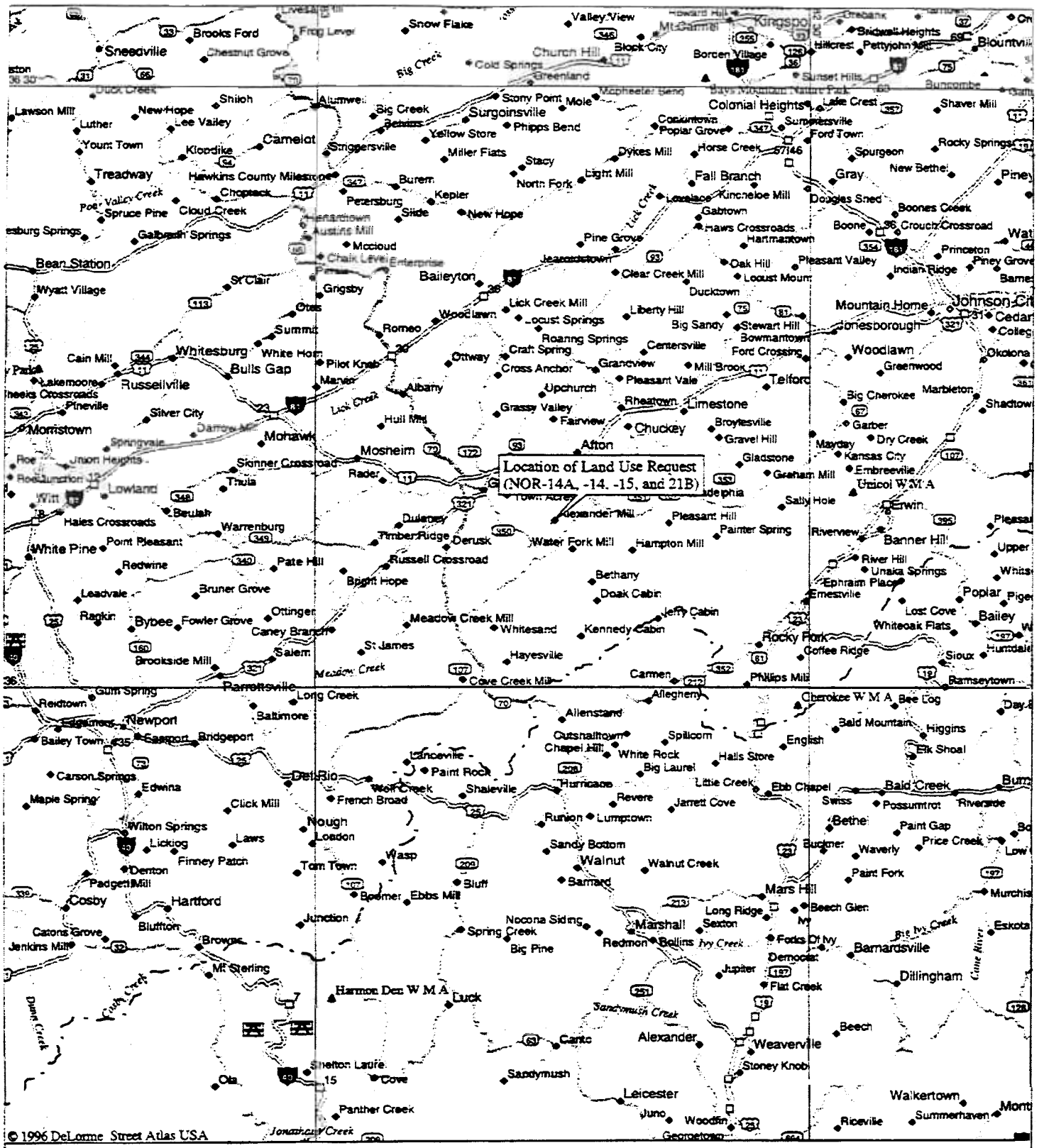
## Background

The Tennessee Valley Authority (TVA) must decide whether to issue to Nolichuckey Sand Company, Inc. (NSC) a land use license affecting approximately 30.25 acres of TVA land on the Davy Crockett Reservoir and lake bottom. This would include TVA land in Tract Nos. NOR-14A, NOR-14, NOR-15, and NOR-12B. In addition, TVA must decide whether to issue an approval under Section 26a of the TVA Act for a buoyed pipeline and access ramp. The Nashville District, U.S. Army Corps of Engineers (USACE) is simultaneously reviewing NSC's request for a Department of the Army (DA) permit under Section 10 of the Rivers and Harbors Act of 1899. The agencies have chosen to jointly prepare this Environmental Assessment in order to analyze the environmental consequences of their proposed decisions.

If the agencies issue the licenses and approvals needed, NSC would mine sand from Davy Crockett Lake on the Nolichucky River. While the TVA approval would not be time-limited, the USACE Section 10 permit would authorize dredging for a 5-year period within a 30-acre portion of lake bottom extending over about one mile beginning 500 feet downstream of Bird Bridge. This location is about four river miles upstream of Davy Crockett Dam (Nolichucky River Mile 45.9) (Figures 1 and 2).

The TVA property is presently under a license to the Tennessee Wildlife Resource Agency (TWRA) and is within the Nolichucky Wildlife Management Area and Waterfowl Refuge. The license requested by NSC would allow a temporary access area (gravel ramp) to be excavated on about one-quarter acre of TVA land and allow sand dredging. Section 26a approval is needed from TVA for temporary obstructions caused by a buoyed pipeline and construction of the gravel ramp, both of which would extend into Davy Crockett Lake. A processing facility, now under construction, would be located on adjoining private land. Several trees would be removed and other shoreline vegetation would be disturbed.

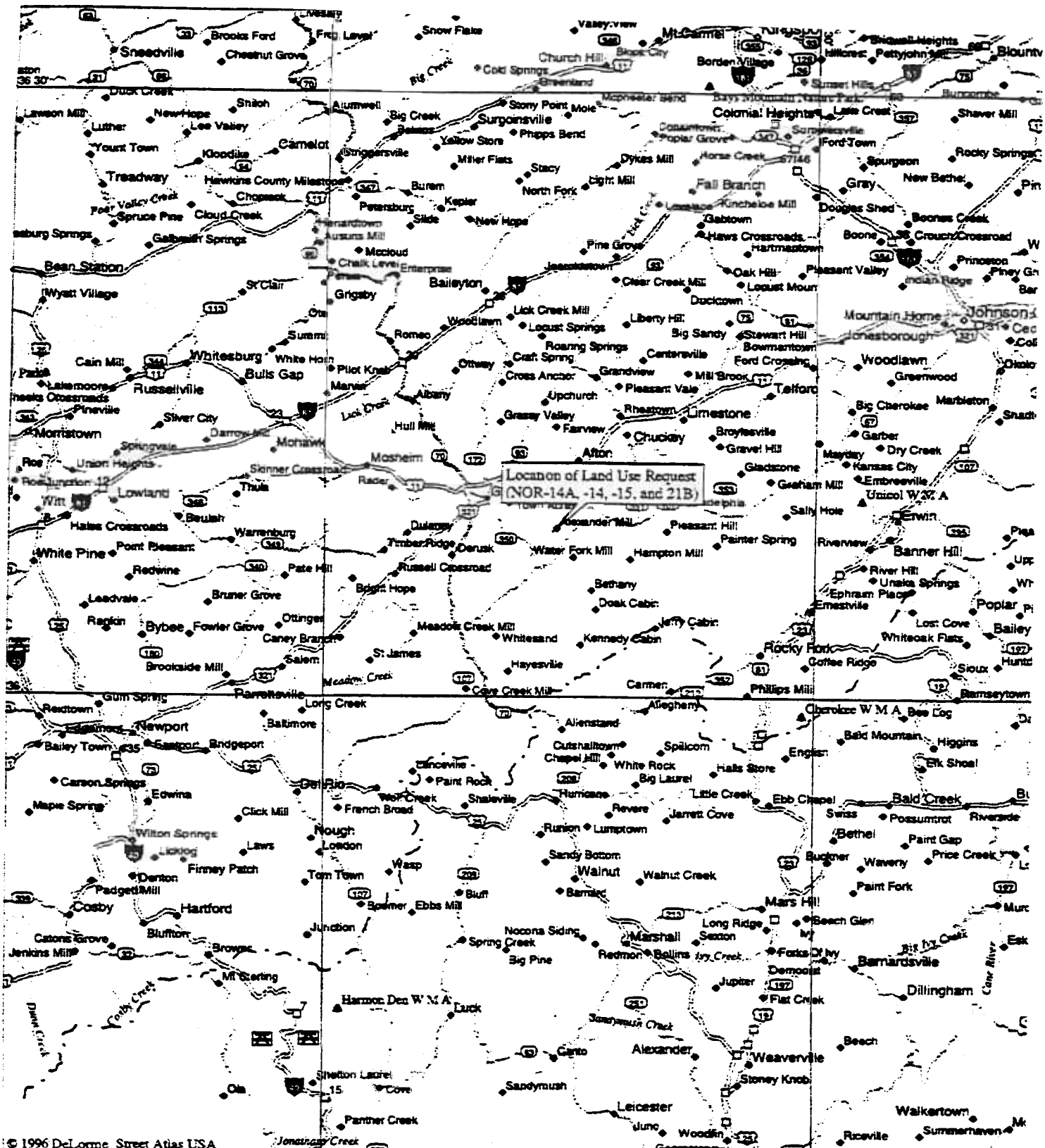
NSC, which operates a similar sand dredging operation at Nolichucky River Mile (NRM) 60.0, proposes to begin operations at this new location beginning in August, 1999. The operation at NRM 60 was authorized under a DA permit in May, 1991. In recent times, river flows and flood events have not been adequate to replenish the sand at NRM 60.0. This has prompted NSC to request approval to dredge at NRM 49 to 50.1, where sand deposits are available. If the requested approvals are granted, NSC would have authorizations to dredge at both NRM 50.1 and 60. Between the two sites, NSC has expressed a strong preference to continue to dredge at Mile 60 since this site is closer to established product markets. The NRM 60 site would therefore serve as the applicant's principal dredging location provided that adequate sand deposits are available in the future. It is estimated that the river annually deposits some 600,000 tons of sand in this area.




# Figure 1 - Nolichucky River (General Location)

Mag 10.00
Mon Jul 19 13:59 1999
Scale 1:500,000 (at center)
10 Miles
10 KM

- Major Connector
- State Route
- Primary State Route
- Interstate/Limited Access
- US Highway
- Rest Area with facilities
- County Seat
- Small Town
- Large City
- Park/Reservation

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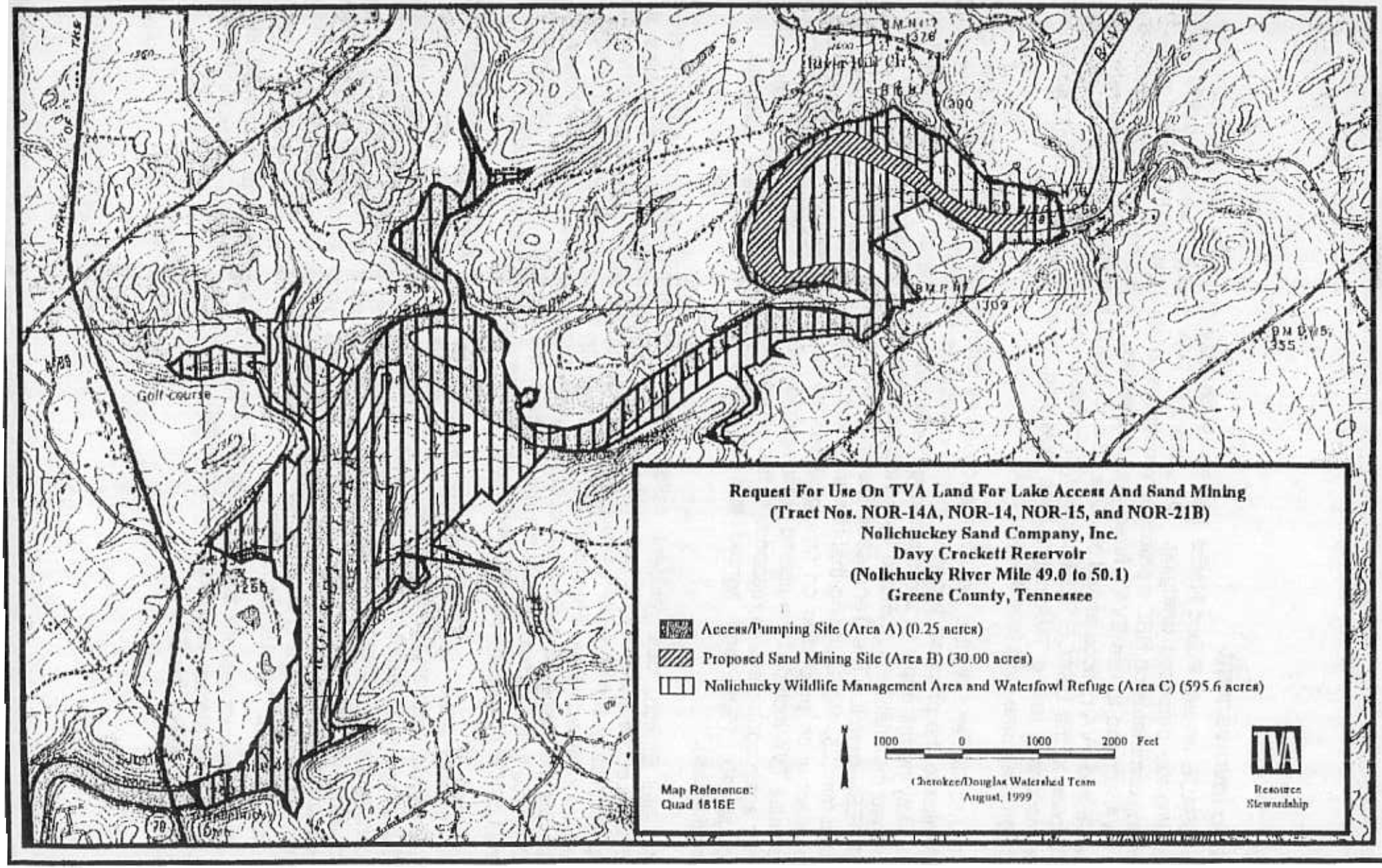
# Figure 2 - Nolichucky River - Proposed Sand Mining Site



## Public Involvement

The USACE issued Public Notice No. 99-49 on May 19, 1999, to solicit comments regarding the proposed dredging. On June 21, TVA issued a second public notice soliciting comments on NSC's proposed request to obtain a permit under Section 26a of the TVA Act and to use TVA's fee-owned properties. Public comment periods for the USACE and TVA notices ended on June 23 and July 9, respectively. There were three responses to the USACE Public Notice, two written and one telephonic. There were five responses to the TVA notice, one in writing, one by electronic mail, and three through telephone calls (see Appendices).

The U.S. Fish and Wildlife Service responded by letter dated June 23, 1999, stating no objection to the proposal provided that all conditions of NSC's existing Department of the Army permit apply to the requested permit and that the all on-land processing of dredged material be authorized by a National Pollutant Discharge Elimination System (NPDES) permit. The Tennessee Historical Commission (THC) responded by letter dated May 25, 1999, stating that the proposed dredge and other activities would have no effect upon properties on or eligible for the National Register of Historic Places. Because TVA included the upland private portion of the site in its review, the THC was once again contacted. In response to this consultation, THC responded by letter dated August 10, 1999, and agreed that no historic properties were affected. (see Appendices).

Mr. Paul Emrich, local resident, called on May 27, 1999, inquiring about potential impacts of the proposal on approximately seven residencies, five rental cabins, and approximately eight unsold residential lots, all located to the north across the river from the proposed activities. He was asked to contact Mr. Tom Bewley, President of NSC, to discuss the matter and possibly to observe the NSC dredge site at Nolichucky River Mile 60.0 to better understand the magnitude of the proposal. He was asked to notify the USACE of any unresolved issues. Mr. Emrich made no further contact .

A June 29 letter, supportive of the proposal, from C. Ray Adams of Greeneville, Tennessee, was also received. Brent Cutburth, also of Greeneville, sent an e-mail to TVA on June 25 expressing general support for the proposal, but also expressed some concerns about potential effects on recreational access and the continued availability of boating and fishing opportunities. TVA also discussed this proposal and its potential impacts on water quality and aquatic ecology with Herb Campbell of Bluefield, West Virginia on July 12; and David Pinkard and David Mills, both of Elizabethton, Tennessee on July 16 and July 19, respectively.

All of these issues are addressed in the aquatic ecology, cultural resources, surface water and stream modification, recreation, and other impacts Sections (also see Appendices) of this EA.

## Alternatives

### *Action Alternative*

Under the **Action Alternative**, TVA would issue a Section 26a approval and a land use license affecting 30.25 acres of TVA land on the Davy Crockett Reservoir shoreland and lake bottom. This would include TVA land in Tract Nos. NOR-14A, NOR-14, NOR-15, and NOR-12B. Impact avoidance and/or mitigation measures would be included as conditions of approval. The EA would also address potential benefits of bottom sediment removal on aquatic life in general.

USCAE would issue a Section 10 permit.

### *No Action Alternative*

Under the **No Action Alternative**, TVA would not issue a Section 26a approval nor a land use license. In the absence of a land use license, USACE would not issue a Section 10 permit.

### *Comparison of Alternatives*

If the **Action Alternative** was adopted, TVA would issue a Section 26a permit and approve a land use license. USACE would issue a Section 10 permit. Of the estimated 600,000 tons of sand deposited in the river annually, some 200,000 tons would be dredged and sold to customers in the area and region. If sand deposits are adequately replenished by river flow and flood events at Mile 60.0, the site at this location would serve as the applicant's principal mining site in the near-term. Over the longer term, i.e., 10 years, it is anticipated that NSC could operate at both locations. This would continue to provide employment and contribute positively to the local and possibly regional economy.

If the **No Action Alternative** was adopted, the TVA land would not be used for this purpose and continue to serve its lake bottom and riparian shoreline functions. No change in public land use would occur and the tract would retain its current public use values.

Under the no action alternative, the Section 26a approval and the land use license would be denied by TVA. In the absence of a land use license, USACE would not issue a Section 10 permit. NSC would not be able to secure a reliable source of river sand and would likely have to rely on its current dry land operation known as "Greystone" to meet the regional demand for sand used in concrete, asphalt, masonry, and general construction trades. Sand produced from the dry land operation would be more expensive, since it involves a crushing and milling process. This process consumes more power and is more costly than pumping sand from the river.

It is likely that NSC would not be able to meet the regional demand for sand used in landfill leachate bed liners. River sand is necessary for bed liners because of the rapid permeability (caused by rounded particles), limited range of particle sizes, and high percentage of voids that are characteristic of river sand. The higher "voids" also make

river sand highly desirable for meeting the "Superpave" specifications of asphalt producers. In addition, it is likely that NSC would not be able to meet the regional demand for sand used in asphalt production.

***Summary of Impacts Under Proposed Action Alternative***

If the **Action Alternative** was adopted, temporary turbidity and siltation would not significantly impact aquatic life. Undredged areas near the banks would provide habitat for fish spawning and other aquatic life and the dredged midchannel would provide a more diverse aquatic habitat (at least temporarily). Any turbidity plume downstream from the sand separation facility outfall is not likely to adversely impact aquatic life since fish can avoid this area.

The action alternative would affect about one-quarter acre of terrestrial habitat at the launch area and about four acres of private uplands. There are large amounts of similar land throughout the area and region with equivalent or higher ecological productivity. With commitments to protect the environment, no adverse impacts to terrestrial ecology on both a local and regional basis are expected. No significant impacts on the Nolichucky WMA and refuge are anticipated and winter closures (i.e., shut down of NSC activities and operations) would avoid any potential disturbance to migrant waterfowl and other water birds. Since NSC would not dredge near the shore, no wetlands habitats would be adversely effected. Adoption of the action alternative would have no effect on any known populations of federally listed protected species since no populations or suitable habitats are known to be present in the immediate vicinity of the site. No suitable habitat for black-bellied salamander occurs at the dredge site.

The SHPO has concurred that dredging in the channel and excavation associated with the intake pipeline and landing area would have no effects on historic properties. In addition, while prior agricultural land use and grading of the 4-acre sand separation facility site has affected an archaeological site and there are potentially historic structures on or adjacent to the site, the SHPO has concurred that these are not eligible for the National Register.

There would be no expected negative impact to recreational use at Kinser Park or the environmental education activities provided at Nolichucky Dam through the efforts of Cedar Hill Learning Center. There may be some minor impact on float fishing and duck hunting by the dredging operation itself but these impacts would not be significant. The sand dredging activity would not cause blockage of the river channel to recreational boating and fishing. Launching at the TWRA Bird Bridge access ramp and movements downstream or upstream of the ramp would not be impeded. Noise from the pump engines may move ducks away from the dredging operation area, making the harvesting of ducks more difficult, but it should not be a significant impact to the duck hunting experience. Similarly, noise may effect bank fishing in the immediate vicinity of the pump engine, but not in the general area.

### *Summary of Impacts Under No Action Alternative*

If the **No Action Alternative** was adopted, there would be no potential effects to aquatic or terrestrial ecology, the wildlife management area and refuge, surface water (water quality), riparian or wetland habitats, recreation, floodplains, or historical properties, and no visual or noise effects. Therefore, no direct or indirect adverse environmental effects. and no cumulative effects are expected to result from implementation of No Action.

## Affected Environment

### *Aquatic Ecology*

The section of Davy Crockett Lake that would be dredged under the action alternative is typical of nearby reaches of the lake and the Nolichucky River. Depths are almost uniformly shallow, with deeper water near bluffs and other areas where flow is sufficient to prevent sand and silt deposition. Visible substrate over the area is almost entirely sand, with some mud nearer shore. The shoreline is well-vegetated with medium and large hardwood trees and herbaceous undergrowth. Nearshore aquatic habitat is mostly tree roots, fallen tree trunks and branches, and other woody debris that has drifted into the area. Some areas of bedrock are present on a bluff along the right descending bank, and in other areas on the outside of bends.

Although TVA has not conducted comprehensive fish monitoring in Davy Crockett Lake (as has been conducted on most other mainstream Tennessee River and tributary reservoirs), TWRA has conducted a comprehensive fish survey of the Nolichucky River during July and August, 1998. Twenty-four species (Table 1) were found at five sites sampled in the river reach influenced by Davy Crockett Dam (TWRA 1999). All of these species are widespread in East Tennesee.

### *Terrestrial Ecology*

Terrestrial habitats in the vicinity of the proposed dredge area and sand separation facility site are a mosaic of openlands, interspersed with patches of forest areas. Openlands range from farmed agricultural fields, reverting old fields in various stages of succession, and maintained residential lawns. Common terrestrial vegetation in typical deciduous hardwood forest areas includes a variety of oaks, hickories, maples, gums, and pines with an understory of smaller trees and shrubs.

Reverting old fields and edge areas include a variety of shrubs, vines, forbs, weeds, and grasses, such as dogwood, maple, sumac, honeysuckle, ironweed, ragweed, beggerweed, blackberries, and broom-sedge. Agricultural fields are used to produce fescue, clover, and orchard grass for hay and pasture or row crops, such as tobacco, corn, and wheat.

**Table 1.** *Fish collected during TWRA electrofishing sampling at five sites in Davy Crockett Lake (Nolichucky River Miles 47.9 - 61.0), 1998.*

| Scientific Name | Common Name |
|---|---|
| *Dorosoma cepedianum* | Gizzard shad |
| *Cyprinus carpio* | Common carp |
| *Cyprinella spiloptera* | Spotfin shiner |
| *Luxilus coccogenis* | Warpaint shiner |
| *Nocomis micropogon* | River chub |
| *Notropis rubellus* | Rosyface shiner |
| *Notropis volucellus* | Mimic shiner |
| *Carpiodes carpio* | River carpsucker |
| *Hypentilium nigricans* | Northern hog sucker |
| *Moxostoma anisurum* | Silver redhorse |
| *Moxostoma carinatum* | River redhorse |
| *Moxostoma duquesnei* | Black redhorse |
| *Moxostoma erythrurum* | Golden redhorse |
| *Moxostoma macrolepidotum* | Shorthead redhorse |
| *Ictalurus punctatus* | Channel catfish |
| *Pylodictis olivaris* | Flathead catfish |
| *Ambloplites rupestris* | Rock bass |
| *Lepomis auritus* | Redbreast sunfish |
| *Lepomis macrochirus* | Bluegill |
| *Lepomis microlophus* | Redear sunfish |
| *Micropterus dolomieu* | Smallmouth bass |
| *Micropterus punctulatus* | Spotted bass |
| *Micropterus salmoides* | Largemouth bass |
| *Pomoxis nigromaculatus* | Black crappie |

Common forest wildlife species include American toad, northern ringneck snake, barred owl, red-shouldered hawk, wood thrush, pileated woodpecker, red-eyed vireo, southern flying squirrel, and gray squirrel. Wildlife species common to both openlands, forest, and associated edge habitats are white-tailed deer, opossum, gray fox, deer mouse, eastern wild turkey, red-tailed hawk, great horned owl, northern cardinal, eastern box turtle, eastern garter snake, black rat snake, spotted salamander, and fivelined skink.

Wildlife species found in typical openlands include red fox, coyote, American kestrel, indigo bunting eastern bluebird, mourning dove, and northern mocking bird.

### *Managed Areas*

The Nolichucky Wildlife Management Area (WMA) and Waterfowl Refuge is located on Davy Crockett Lake on the Nolichucky River approximately seven miles south of Greenville, Tennessee (Figure 2). The WMA begins about 200 yards above the Highway 70 crossing of the Nolichucky River at Nolichucky Dam (NRM 46.0) and extends approximately 4.3 miles upstream to Byrds Bridge (TWRA 1988).

The area was purchased by TVA in the early 1970s and managed jointly by TVA and the Tennessee Game and Fish Commission from 1973 to 1987 under a cooperative agreement (Contract No. TV-38449A). TVA executed a license agreement (Contract No. TV-71834A) with the TWRA in 1987. Management objectives under both of these contracts were to provide habitat for a wide variety of game and nongame wildlife species with an emphasis on resident and migrant waterfowl. The WMA is currently managed as a waterfowl refuge beginning one week before and during the late waterfowl season. This period was December 5-11 and December 19-January 31 for the 1998-99 hunting season. Both boat and human access is restricted during this period. The closure period varies slightly each year depending on specific opening and closing dates selected by TWRA within the waterfowl hunting season framework established by the U.S. Fish and Wildlife Service (FWS). The dominant public use on the WMA during the nonclosure period is waterfowl, small game, and big game hunting along with limited fishing.

The total size of the WMA is approximately 600 acres of land and water. Heavy siltation of the Nolichucky River and Davy Crockett Lake has occurred from eroding feldspar, mica, and kaolin mining that occurred upstream in North Carolina prior to 1971. This silt load has reduced the original water storage capacity of Davy Crockett Lake by 86 percent. The current amount of surface water in the WMA is probably around 150 acres. Approximately 100 acres of the WMA is in open managed lands (agricultural and old fields) and 100 acres is in patches of upland hardwood forest (TWRA 1988). Wetland/riparian habitats make up the remaining 250 acres.

Openlands are managed for game species, such as bobwhite quail, eastern cottontail rabbits, mourning doves, and resident Canada geese. Hunting is also allowed for gray squirrel, whitetail deer, ruffed grouse, American woodcock, and common snipe (TWRA 1998-99). The WMA currently supports about 200 resident Canada geese and 500 migrant ducks (Ron Saunders, TWRA, pers. comm., July, 1999). Annually, a substantial population of wood ducks nest and rear their young in wetland/riparian habitats during spring and summer. Numerous wading birds, mammals, songbirds, raptors, amphibians, and reptiles also utilize the wetland/riparian portions of the WMA. Migrant waterfowl, water birds, and resident wildlife populations using the WMA and adjoining areas appear to have at least stable or increasing population trends.

***Protected Species***

TVA Regional Natural Heritage inventory data sources were reviewed to determine the likely occurrence of federal or state protected species in the general vicinity of Nolichucky River Miles 49 and 50 and the surrounding shorelands.

The federally endangered gray bat *(Myotis grisecscens),* is reported from Cedar Creek Cave (1997 record), approximately 6.5 miles southwest of the site. The cave is used by transitory gray bats as a hibernaculum.

Sharphead darter *(Etheostoma acuticeps),* listed as in need of management by the state of Tennessee, is reported from NRM 42.2 (1984). Also, pink muckett *(Lampsilis abrupta),* a federally endangered mussel is reported from NRM 17.7 and 19.7 (1964); while highfin carpsucker *(Carpiodes velifer),* listed by the state of Tennessee as in need of management, is reported from NRM 47 (1947).

The black-bellied salamander *(Desmognathus quadramaculatis)* is reported to occur within four miles from the site (1962). This species is listed in need of management by the state of Tennessee, but is very common along small to medium sized streams. Although it could occur in small streams in the area, the Nolichucky River does not provide suitable habitat for this species.

Osprey, listed as threatened by the state of Tennessee, may infrequently pass through the project area during spring and fall migrations, but no recent sightings have been reported.

No records of protected plant species were found within a five-mile radius of the project site.

As mentioned in the Aquatic Ecology section, TWRA conducted a comprehensive fish monitoring survey during July and August 1998 of the Nolichucky River that included the area upstream of Davy Crockett Dam (TWRA 1999). Twenty-four species (Table 1) were collected at five sites. All of the species collected are widespread in east Tennessee and none are listed as protected. TVA has not surveyed the area under consideration for mining for the presence of protected or other mussel species, but their occurrence is unlikely because of the lack of suitable habitat in the reservoir pool area (John Jenkinson, pers. comm. July, 1999 ).

***Cultural Resources***

The Nolichucky River Valley is an area rich in prehistoric archaeological resources and sites of early historic settlement. Alluvial terraces along the river are particularly likely to have evidence of prior human utilization. During a field review of the proposed development site on June 11, 1999, scattered prehistoric stone artifacts were observed along the margins of the graded sand separation facility site and in stockpiles of topsoil that had been excavated from the site prior to leveling it. It is now impossible to determine the age and significance of the archaeological site that was already affected

by prior land use and altered by site grading prior to NSC's request for a license and Section 26a approval for this proposal.

Located near the entrance drive to the plant site is a mid-nineteenth century frame house. The property owner indicates this house was built ca. 1840 by the Bird family after whom Bird Bridge is named. There is also a barn on this property within view of the project. The SHPO has concurred that the barn and the house are sites not eligible for the National Register of Historic Places. The property owner indicated in an interview with TVA's historic architect that these buildings may be adapted for use in a winery business.

The proposed dredging location in the river bed contains only recently accumulated sand and gravel; therefore, no historic properties occur in that location. The intake pipeline is located on a steep slope and on the lowest terrace of the Nolichucky River. This is adjacent and just downstream of the proposed barge landing area. No historic properties occur on the slope and the first river terrace consists of sediments accumulated in the twentieth century; therefore, there are no historic properties in the pipeline or landing locations.

***Surface Water and Stream Modification***

This reach of the Nolichucky River is listed on the Tennessee Department of Environment and Conservation (TDEC) 303(d) list of streams that are "water quality limited" because of siltation deposits resulting from agriculture, resource extraction, and from various sources in the watershed. TDEC use classifications for this river reach are domestic and industrial water supply, fish and aquatic life, recreation, irrigation, and livestock watering and wildlife.

***Wetlands/Riparian Habitats***

Wetland/riparian habitats are present within the vicinity of the proposed mining area. Between Bird Bridge (NRM 50.1) and Davy Crockett Dam (NRM 46.0) there are approximately 250 acres of these habitat types over 4.3 miles of Davy Crockett Lake. Riparian areas are found along both shorelines and are dominated by medium to large trees. Common trees include black willow, river alder, and silky dogwood with younger trees, such as box elder, silver maple, river birch, sycamore, green ash, and red maple. The understory includes young trees of the same species and a patchy herbaceous layer of grasses and forbes. Scrub-Shrub wetlands are dominated by woody vegetation, largely buttonbush, less than 20 feet tall.

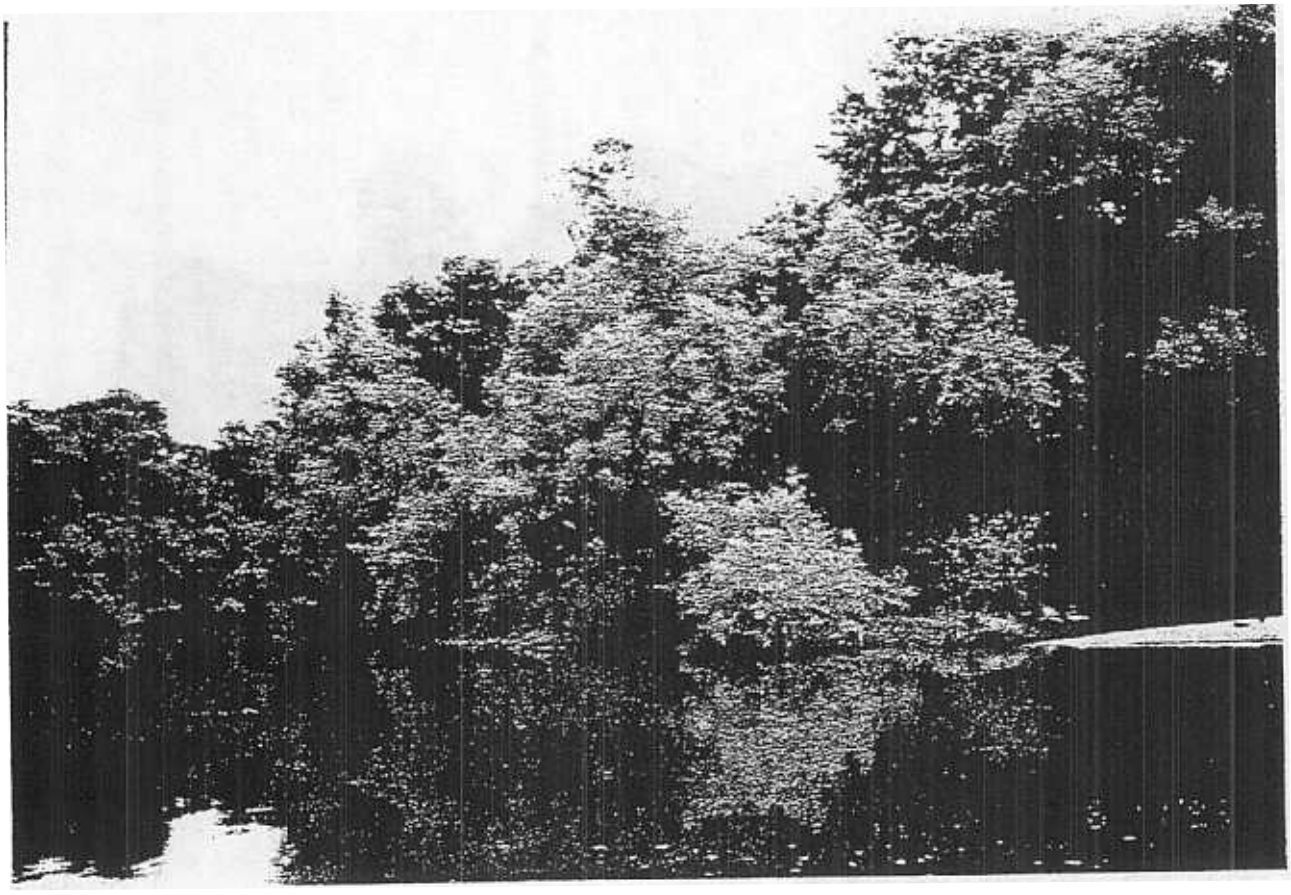
Wetland types, as classified by Cowardin et al. 1979, include mostly scrub-shrub and forested wetlands. These areas are located adjacent to riparian areas on TVA property within the WMA and receive intermittent flooding. Many scrub-shrub areas have developed on bars, islands, peninsulas, and sloughs that have formed as a result of the heavy silt and sand load carried by the river. Forested wetlands have developed in low-lying floodplain areas. Scrub-shrub and forested wetlands are found mostly between

NRM 46 and 49 while the area upstream of NRM 49 is dominated by riparian habitats and forested wetlands (Figures 3 and 4).

Common wildlife species that use scrub-shrub wetlands include the wood duck, mallard, black duck, American coot, green-backed heron, red-winged blackbirds, yellow warblers, prothonotary warblers, tree swallows, beaver, muskrat, mink, raccoon, northern water snake, and bullfrog (TVA 1998a). Forested wetlands are dominated by woody vegetation 20 feet or greater in height. This wetland type generally includes an overstory of trees, with an understory of young trees or shrubs and a herbaceous layer of grasses and forbes. Common tree species include river birch, sycamore, red maple, green ash, sweet gum, American elm, silver maple, and boxelder. Common wildlife species that use forested wetlands and forested riparian habitats include the wood duck, mallard, black duck, green-backed heron, yellow-crowned night heron, great egret, great blue heron, red-shouldered hawk, barred owl, osprey, belted kingfisher, pileated woodpecker, northern water snake, black rat snake, gray tree frog, American toad, beaver, mink, white-tailed deer, gray squirrel, and raccoon (TVA 1998a).

### *Recreation*

As previously stated the operation would be located on a small portion of the property licensed to TWRA known as the Nolichucky Wildlife Management Area and Waterfowl Refuge. In addition there is a public boat ramp operated by TWRA nearby. The ramp is approximately 500 feet upstream of the land operation and is located on the opposite bank. The boat ramp has parking for approximately 10-15 boats and trailers. The ramp and immediate shoreline receives light use for launching boats, bank fishing, and duck hunting. Most of the bank fishing occurs directly under the bridge but some does occur along the right bank below the ramp.



Figures 3 - Shows typical stretch of shoreline in the vicinity of the proposed dredging operations affecting Tract No. NOR-14A, -14, -15, and -12B. Note vegetation and accretions of sand bars which have resulted from past deposition.

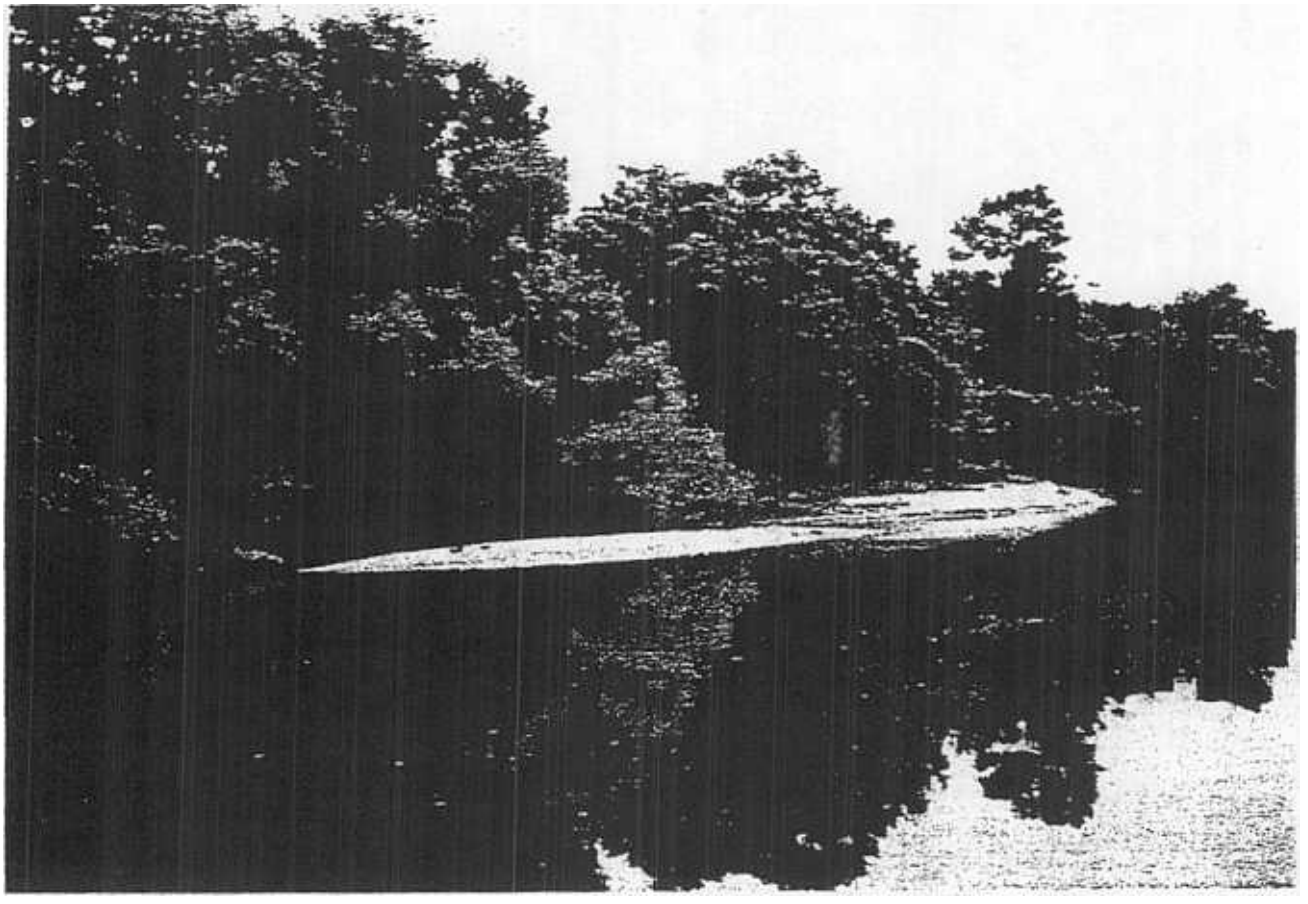


**Figure 4 - Shows typical stretch of shoreline in the vicinity of the proposed dredging operations affecting Tract No. NOR-14A, -14, -15, and -12B. Note accretions of sand bars which have resulted from past deposition.**

Kinser Park, operated by a Commission, with contributions from Greenville and Green County, is located about one mile downstream of the furthest downstream portion of the proposed dredge operation. The park has approximately 130 campsites, 20 tent sites, a nine hole golf course, water slide, swimming pool, tennis courts, ball fields, and a boat ramp. Because of the diversity of facilities the park receives a considerable amount of recreational use.

TVA has a contract with Cedar Hill Learning Center to provide maintenance of the lands and facilities (picnic pavilion, amphitheater, roads and parking lots) at Nolichucky Dam for the purposes of providing outdoor education opportunities for children in Greene and Washington County. Annually, some 2,000 children and local educators visit this site (Doug Ratledge, pers. comm., June, 1999).

## Environmental Consequences

### *Aquatic Ecology*

Under the no action alternative, the area would not be dredged, and sand and silt would continue to accumulate in, or move through, the area. As a result, there would be little change to aquatic habitats, other than what would be associated with shifting substrates and accumulation of silt and sand at some points along the shoreline.

Under the action alternative, the proposed mining operation would result in the loss of 0.25-acre of riparian vegetation and cause a temporary increase in turbidity during site preparation. Some temporary, localized turbidity due to runoff is also likely if sufficient rains fall during site preparation. During dredging operations, some minor aquatic habitat alteration (possibly beneficial) and some increase in turbidity may occur over short durations. Such short-term increases in turbidity and siltation, the potential for which would be reduced with erosion control measures, would not significantly impact aquatic life.

The mining operation would remove sand from the midchannel area. The sand remaining in undredged areas near the banks would provide habitat for any aquatic life that benefits from a sandy substrate. Dredging would result in deeper water in midchannel areas, possibly exposing the original rock streambed, which would provide additional deeper, more diverse aquatic habitat (at least temporarily). A small plume of turbidity would probably extend downstream from the onshore facility during sand pumping and separation, but such a discharge is not likely to adversely impact aquatic life since fish can avoid any areas impacted by turbidity. The Aquatic Resource Alteration Permit (ARAP) issued by TDEC requires that the operation be carried out in a manner that prohibits the occurrence of violations of water quality criteria and does not impair the designated uses (including fish and aquatic life, livestock watering and wildlife, recreation, and irrigation) (see ARAP in Appendices).

Fish spawning would not be adversely impacted by dredging since the habitat disturbed would be the very shallow, essentially featureless, sand flat in open water areas. With

the commitments specified in this EA, any fish spawning, feeding, or resting areas nearer shore (on either bank) in association with woody or rock cover would not be disturbed. Dredging would not occur within 30-feet of either bank or the lakeward extent of over-water tree canopy. This would prevent bank destabilization, loss of riparian vegetation, and existing fish cover. Most fish spawning would occur in the undisturbed area near the shore; therefore, impacts on spawning would be insignificant (see Commitments).

***Terrestrial Ecology***

The no action alternative would not affect any terrestrial habitats and would have no impacts on terrestrial ecology.

The action alternative would affect about 0.25-acre of terrestrial habitat at the launch area (Figure 5) and about four acres of private uplands at the sand separation facility site. Removal of this small amount of forest and oldfield habitat would have only minor impacts on locally occurring wildlife populations. There are large amounts of similar land throughout the area and region with equivalent or higher ecological productivity. Under the action alternative, this would be the maximum disturbance to terrestrial ecology including wildlife habitat on TVA property. Terrestrial habitats and upland animal populations that occur on or use the property are regionally widespread and generally common. NSC's activities would be primarily on the river, therefore, no significant adverse impacts to terrestrial ecology, locally or regionally, would occur (see Commitments). Land use in the vicinity of NSC is largely rural farm country with wood lots and pasture lands. Therefore, TVA has determined that the incremental impacts of the proposed use of this site and subsequent implementation of a conditionally approved development, when added to past, present, and reasonably foreseeable future actions, would be insignificant on local and regional terrestrial resources.

***Managed Areas***

Under the no action alternative, sand would not be mined. The accumulation of sand and silt could result in the formation of some additional wetland habitats as sandbars are formed and colonized by vegetation. This could provide additional habitat for wetland wildlife and some waterfowl species, but would also further reduce open water habitat for other waterfowl species. There would be no impacts to migrant waterfowl or resident wildlife populations and their habitats under this alternative.

Under the action alternative, dredging would occur within a 30-acre portion of lake bottom extending over about one mile within the WMA subject to the following commitments:

1 To protect near shore aquatic and riparian wildlife habitat, and to prevent the loss of riparian trees due to bank destabilization (sloughing), no dredging is permitted within 30 feet of the shoreline (of either bank) or beneath the lakeward extent of any over-water tree canopy (whichever is greater).

**Figure 5 - Shows a view from the river of the temporary lake access site under construction on the left (south) bank at Nolichucky River Mile 50.1.**

2. TWRA prohibits any public access within the Nolichucky Refuge during the late waterfowl season. This time frame is proclaimed by Tennessee Wildlife Resource Commission annually in August within the framework of FWS regulations. All activities by licensee must be approved by TWRA prior to any access during this time frame.

The limitation of the operation to a small acreage of the WMA (about six percent of total WMA size) together with the commitments would prevent the proposed action from having any significant impacts on wildlife/waterfowl habitats or populations within the WMA (see other related Commitments).

***Protected Species***

Adoption of the no action alternative would have no effect on any known populations of federal or state listed protected species in the area.

Adoption of the action alternative would have no effect on any known populations of state or federally protected species. NSC day-time operations would not disturb night-time foraging activities of any gray bats that may use the area. No osprey nesting is know from this area and dredging is not expected to impact their infrequent passage along this reach of the river. The black-bellied salamander is very common along small to medium sized streams in the area. However, no small streams would be affected by the proposed project. Nolichucky River does not provide suitable habitat for this species, and therefore, neither salamander populations nor their habitat would be adversely effected by the proposed dredge operations.

***Cultural Resources***

Under the no action alternative, no dredging would take place, so cultural resources would not be affected.

Under the action alternative, the 4 acres of private land to be used as the location for the sand separation facility site was the location of an archaeological site whose physical integrity is no longer preserved. Evidence of this site can only be seen around the periphery of the 4-acre graded area and in topsoil stockpiles. Historic maps and informant testimony indicate that the plant site was a previously cultivated field; therefore, there was disturbance of the archaeological site from agricultural practices prior to the proposed undertaking.

A house and barn, both more than 50 years old, are located along the entrance drive to the facility. These structures were evaluated for National Register eligibility and both were determined <u>not</u> to be eligible for the Register. The SHPO has concurred in this determination; therefore no further consideration of these structures is required under Section 106 of NHPA. In response to a USACE public notice, the SHPO has previously

concurred that dredging in the channel and excavation associated with the intake pipeline and landing area would have no effects on historic properties (see Section 106 correspondence in Appendices).

***Surface Water and Stream Modification***

Under the no action alternative, no dredging would take place, so water quality and riparian habitats would not be impacted.

Under the action alternative, the proposed mining operation could result in temporary turbidity during site preparation and operation. Some temporary, localized turbidity due to runoff is likely if sufficient rains fall during site preparation. These effects would be minimized through revegetation or other stabilization of disturbed soil, as well as Best Management Practices (BMPs) and other appropriate erosion control measures such as silt fencing or hay bales.

A small plume of turbidity would likely extend downstream from the onshore facility during sand pumping and separation. The Aquatic Resource Alteration Permit (ARAP) issued by TDEC requires that the operation be carried out in such a manner that water quality criteria (including turbidity) not be violated and that designated uses not be impaired (see Commitments and ARAP in Appendices).

The Nolichucky River at the site has been designated an impaired water because of siltation. The proposal would improve the quality of the water with respect to this criterion because it would involve dredging sand from the river bottom. Riparian vegetation would not be significantly impacted with the commitment to maintain a buffer zone (see Commitments).

As part of NSC's operation, they would install an above-ground fuel storage tank with a capacity of 300 gallons of diesel fuel on TVA land. Potential impacts from spills and releases would be minimized by a Spill Prevention, Control, and Countermeasures Plan (SPCC) (copy attached) and by strict adherence to the other commitments in the commitments section.

***Wetlands/Riparian Habitats***

Under the no action alternative sand would not be mined and sand and silt would continue to accumulate. This would result in the formation of some additional wetland habitat as sandbars are formed and colonized by vegetation. This would provide minor amounts of additional habitat for wetlands/riparian wildlife. The overall affect of this alternative on wildlife populations or their habitats would be insignificant compared to the amount of existing wetland/riparian habitat available in the area.

Although about 0.25-acre of TVA land has been cleared for creating a site for temporary access, booster pump, and fuel storage tank, no construction activities would

occur in wetlands on this or private land. Under the action alternative dredging would be subject to the following commitments.

1 To protect near shore aquatic and riparian wildlife habitat, and to prevent the loss of riparian trees due to bank destabilization (sloughing), no dredging is permitted within 30 feet of the shoreline (of either bank) or beneath the lakeward extent of any over-water tree canopy whichever is greater.

2. TWRA prohibits any public access within the Nolichucky Refuge during the late waterfowl season. This time frame is proclaimed by Tennessee Wildlife Resource Commission annually in August within framework of U.S. Fish and Wildlife Service regulations. All activities by licensee must be approved by TWRA prior to any access during this time frame.

These commitments would prevent the proposed action from having any significant negative impacts on wetlands/riparian habitats (see other related Commitments).

***Recreation***

The location of the NSC temporary access ramp and processing facility should have little if any impact on the recreation activities associated with the TWRA ramp users In addition, there would be no expected negative impact associated with these activities and the recreation use occurring at Kinser Park nor the environmental education activities conducted at Nolichucky Dam through the efforts of Cedar Hill Learning Center.

The dredging operation itself could have a minor impact on float fishing and duck hunting; however, these impacts should not be significant because the NSC use area is only about 6 percent of total WMA acreage. Further, Commitment 10 requires NSC to conduct the dredging operation in a manner that does not cause blockage of the river channel. Although caution may have to be used at times, launching at the public boat ramp and traveling downstream or back upstream to the ramp would not be impeded. Noise from the pump engines may move ducks away from the dredging operation area, making the harvesting of ducks more difficult. However, there is better duck habitat downstream closer to the dam and there are other nearby duck hunting sites.

Noise associated with the pump engines should not impact bank fishing near the ramp and bridge because of the 500 foot distance between the initial dredging site and the ramp/bridge. There may be a slight impact on the bank fishing that occurs below the ramp but this should be minor and temporary since the dredge would be moving down river over the ten year period.

***Other Impacts***

NSC's proposed project involves dredging about 200,000 tons of sand per year for a commercial sand operation. For compliance with Executive Order 11988, dredging

would be considered a repetitive action in the floodplain that should not result in adverse floodplain impacts if the dredged material is spoiled outside the limits of the floodplain. Based on a field inspection, the sand retention area would be outside the limits of the 100-year floodplain. Therefore, no impacts on local floodplains are anticipated.

This reach of the Nolichucky River is generally tranquil and vegetation occurs along the entirety of its right (north) bank; some open land and pasture occurs on the left (south) bank. Because of local topography, views from the river, particularly to the north, are somewhat limited to the upstream and downstream directions. Seven residencies, five rental cabins, and approximately eight unsold residential lots scattered along Bird Bridge Road (old Asheville Highway) north of the boat ramp and in the River Hill Community, are all located on private lands in the surrounding area. Trees and other dense vegetation occur between these properties and the river. Therefore, with the exception of boaters and persons fishing, river viewers are few. Because most of the river in this vicinity is very shallow and often appears somewhat brownish in color, sand removal would probably improve the visual character of the river. No adverse visual impacts are expected from accessing the river, or operation of the barge, pumps, and associated sand separation facilities.

Also, because of the general remoteness of the area and the distance from the river to the nearest homes, little, if any, noise effects are expected (also see Recreation Section above).

***Cumulative Impacts***

The only other activity with potential to cumulatively affect the resources being impacted by this proposal is the existing sand dredging operation at NRM 60. With environmental protection commitments included herein, TVA finds that the sand recovery from this portion of the Nolichucky River would likely have insignificant effects on the fishery. The effects on aquatic ecology in general would probably be potentially beneficial (although likely temporary). Migrant waterfowl, water birds, and residential wildlife populations using the WMA and adjoining areas appear to have at least stable or increasing population trends. No negative trends for any of the resource areas addressed in this EA are known in the area or region. This proposal would not negatively affect aquatic or terrestrial ecology, wildlife management area and refuge, surface water (water quality), riparian/wetland habitats, recreation, floodplains, visual, or noise effects. Approval and implementation of the Action Alternative would not adversely contribute to any negative trends in any of these resources.

Terrestrial habitats present and wildlife species that occur on or use the property are regionally widespread and generally common. Land use in the vicinity of NSC is largely rural farm country with wood lots and pasture lands. This operation would not affect the continued development of shoreline wetland/riparian habitats. Seasonal use of this area by migrant waterfowl and other water birds is not expected to be directly affected. Also, this operation would not negatively contribute to any adverse trend in water quality or aquatic ecology in the region. In accordance with TWRA management objectives,

recreational use of and access to the public ramp and wildlife management area as well as Davy Crockett Lake, would be maintained. Therefore, TVA has determined that the incremental impacts of the proposed use of this site, with commitments described herein, when added to past, present, and reasonably foreseeable future actions, would be insignificant on locally and regionally.

## Preferred Alternative

TVA's preferred alternative is to approve a land use license and issue a Section 26a approval affecting approximately 30.25 acres of fee-owned Davy Crockett Reservoir shoreland and lake bottom. This would include TVA land in Tract Nos. NOR-14A, NOR-14, NOR-15, and NOR-12B. Consistent with NSC' s requested 10-year operations, TVA's revocable license agreement would be issued subject to all of the environmental protection commitments in this EA. If USACE issues an approval, the Section 10 permit would be effective for a five-year period.

## Commitments

The following conditions will be included in the license agreement between TVA and NSC, as well as in the Section 26a approval issued by TVA:

1. Nolichuckey Sand Company will conduct all land-disturbing activities on the above-described land in accordance with the best management practices as defined by Section 208 of the Clean Water Act and implementing regulations to control erosion and sedimentation so as to prevent adverse impact on water quality and related aquatic interests.

2. To protect near shore aquatic and riparian wildlife habitat, and to prevent the loss of riparian trees due to bank destabilization (sloughing), no dredging is permitted within 30 feet of the shoreline on either bank, or beneath the lakeward extent of any over-water tree canopy, whichever is greater.

3. The work shall be accomplished in conformance with the approved plans, specifications, data and other information submitted in support of the Nolichuckey Sand Company's application and the limitations, requirements and conditions set forth herein.

4. The work and all associated activities shall be carried out in full compliance with the conditions in NSC's DA permit, issued in May 1991, for the dredge at Nolichucky River Mile 60. NSC shall also comply with all conditions included in any DA permit authorizing this dredging operation.

5. Tennessee Wildlife Resource Agency prohibits any public access within the Nolichucky Refuge during the late waterfowl season. This time frame is proclaimed by Tennessee Wildlife Resource Commission annually in August within framework of U.S. Fish and Wildlife Service regulations. All activities by licensee must be approved by TWRA prior to any access during this time frame.

6. The proposed work shall be carried out in such a manner as will prevent violations of water quality criteria as stated in Rule 1200-4-3-.03 of the Rules of the Tennessee Department of Environment and Conservation. This includes but is not limited to the prevention of any discharge that causes a condition in which visible solids, bottom deposits or turbidity impairs the usefulness of waters of the state for any of the uses designated by Rule 1200-4-4. These uses include fish and aquatic life, livestock watering and wildlife, recreation and irrigation.

7. Nolichuckey Sand Company agrees that sand will be stored and contained on land lying above the 1270-foot contour. Precautions must be taken to prevent the reentry of the sand into the reservoir.

8. Any future facilities or equipment subject to flood damage shall be located above or floodproofed to the approximate 500-year flood elevation 1275.0.

9. No future development shall occur within the limits of the approximate 100-year floodplain, elevation 1270.0 without prior approval of TVA.

10. To facilitate recreational boating and fishing, this dredging operation must be conducted in a manner that does not cause blockage of the river channel.

Project Specific Conditions for Placement and Operation of **Above Ground Fuel Storage Tank (AST) and Auxiliary Pump** include the following:

1. Only one AST may be installed on TVA land, with a capacity not to exceed 300 gallons.
2. A copy of the permit for AST issued by the State Fire Marshall shall be provided to TVA.
3. Licensee will implement the measures outlined in the SPCC plan dated August 6, 1999.
4. Licensee will install a containment device equal to 110 percent of volume of tank. The AST and containment device will be covered to prevent compromise from rainfall.
5. Licensee is acknowledged as the owner and operator of the AST and shall be responsible for environmental cleanups associated with any releases of any substances from the AST.
6. Nolichuckey Sand Company agrees to securely anchor all floating facilities to prevent them from floating free during major floods.
7. Nolichuckey Sand Company is responsible for all piping, tanks, pumps, and other land-based equipment associated with this license. Pump and fuel tank (including containment) on the TVA land shall be removed by Nolichuckey Sand Company in the event of flooding.

## List of TVA Preparers

Steve Cottrell (Wildlife Biologist)

Stan Davis (Environmental Scientist)

George Humphrey (Recreation)

Roger Milstead (Reservoir Operations)

Sam Perry (Landscape Architect - Visual)

George Peck (Aquatic Ecology and Water Quality)

Danny Olinger (Cultural Resources)

Harold Draper (NEPA Specialist)

## List of USACE Preparers

K. Wade Whittinghill (Regulatory Project Manager)

## Agencies and Persons Consulted

The following agencies were notified of the proposed project.

- Tennessee Department of Environment and Conservation (TDEC), Tennessee Historical Commission
- TDEC, Division of Water Pollution Control
- TDEC, Division of Air Pollution Control
- TDEC, Bureau of State Parks
- Tennessee Department Of Transportation
- East Tennessee Development District
- Tennessee Department of Agriculture
- Tennessee Wildlife Resources Agency
- U.S. Army Corps of Engineers, Nashville District
- U.S. Fish and Wildlife Service, Cookeville Field Office
- Mr. Paul Emrich, local resident (River Hill Community), telephone discussion with USACE on 5/27/99
- C. Ray Adams, Adams and Plucker, Certified Public Accountants, 119 S, Main Street, P.O. Box 1117, Greeneville, Tennessee 37744-1117 (6/29/99 letter)
- Brent W. Cutburth, 450 Round Knob Road, Greeneville, Tennessee 37743 (6/25/99 email)

- Herb Campbell, Bluefield, West Virginia (7/12/99 telephone discussion only)
- David Pinkard, Elizabethton, Tennessee (7/16/99 telephone discussion only)
- David Mills, Elizabethton, Tennessee (7/19/99 telephone discussion only)

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